



## **BICYCLE PARKING**

### **RULES AND REGULATIONS ESTABLISHING THE DIMENSIONAL AND EQUIPMENT STANDARDS FOR BICYCLE PARKING AREAS**

#### **I. Objectives for Bicycle Parking**

1. To encourage the use of bicycles for transportation as an alternative to motor vehicles.
2. To provide for bicycle access to employment, commercial, residential and other transportation and travel destinations.

#### **II. Bicycle Parking Standards**

Per the 2008 Alexandria Pedestrian and Bicycle Transportation Master Plan, the “Inverted U” type of bicycle racks are the required bicycle parking rack. Any other type proposed rack would be subject to approval by the Director of the Department of Transportation & Environmental Services (T&ES).

#### **III. Required Provision of Bicycle Parking**

The developer agrees to provide, at no charge to the user, secure bicycle storage facilities. These facilities should be highly visible to the intended users and protected from rain from within a structure shown on the site plan.

The following minimum standards should be met for office, retail and residential developments:

##### **Office Bicycle Storage Facilities:**

The office requirement for bicycle parking is one (1) employee space for every 7,500 square feet, or portion thereof, of office floor area and one (1) visitor space for every 20,000 square feet, or portion thereof, of office floor area to the satisfaction of the Director of T&ES.

Facilities for office users must meet the acceptable standards for Class 1 or Class 2 bicycle parking. Visitor spaces can be Class 2 or Class 3. Drawings showing that these requirements have been met shall be approved by the Director of T&ES before the issuance of the Construction Permit.



**Series of Inverted U Type Bicycle Racks**  
(photo courtesy James Mackay, City of Denver, CO)

**Retail Bicycle Facilities:**

The retail requirement is two (2) Class 2 or Class 3 spaces for every 10,000 square feet, or portion thereof, of the first 50,000 square feet of retail floor area; one (1) space for every 12,500 square feet, or portion thereof, of additional retail floor area and one (1) employee space for every 25,000 square feet, or portion thereof, of retail floor area. These bicycle parking spaces shall be installed at exterior locations that are within 50 feet of the entrance for retail customers and employees, and such locations shall be reviewed by T&ES.

**Residential Bicycle Facilities:**

The residential requirement is three (3) spaces for every 10 residential units, or portion thereof, and one (1) visitor space for every 50 residential units, or portion thereof to the satisfaction of the Director of T&ES. Twenty-five percent of residential spaces shall be Class 1 bicycle parking and the remaining shall be Class 1 or Class 2 bicycle parking. Visitor spaces may be Class 2 or Class 3 bicycle parking.

**Hotel Bicycle Facilities:**

The hotel requirement is one (1) rack per fifteen (15) rooms for less than 75 rooms, and six (6) visitor racks for a hotel with more than 75 rooms. Visitor and employee spaces may be Class 2 or Class 3 bicycle parking.

**Additional development standards:**

Public or Commercial Recreation Facilities—Provide Class 2 or Class 3 bicycle parking spaces that amount to 15 percent of required automobile parking.

Lodging – Provide Class 2 or Class 3 bicycle parking spaces that amount to 10 percent of required automobile parking.

**Plan Requirements:**

- Bicycle parking locations with dimensions shall be shown on the preliminary site plan
- Detail of proposed Class 1 & 2 bicycle parking shall be provided with the first final site plan submission



#### IV. Type of Bicycle Parking Required:

##### **Class 1: Locked Storage Room or Cage (Long Term)**

Class 1 storage for bikes consists of a cage or room where entry is controlled via locking mechanism (may be combination, key, fob, etc) and where the bicycles are protected from inclement weather. Class 1 storage could be in a garage, lockable ground floor room or some other agreed upon location. A ground floor room has the advantage of cleaner facilities, fewer conflicts with automobiles and easier access to the outside. This type of bicycle parking is most appropriately used for long term residential storage or office parking.

- This is a fully enclosed room (block, concrete, or studs with drywall) or cage covered by industrial grade expanded metal mesh or welded wire mesh.
- Has a heavy-duty cipher or electronic lock on the entrance.
- Bikes are locked to racks within the enclosure.
- Has 72 inch (6 foot) wide aisles inside the enclosure that allows bikes to be maneuvered in and out.



**Double-decker Bicycle Racks**  
(photo courtesy of Arlington County)



**Double cage with inverted U racks**  
(photo courtesy of Tacoma-Pierce County Chamber)

For additional information on bicycle parking, visit <http://alexandriava.gov/localmotion/> or contact Alex Carroll, Complete Streets Coordinator, via e-mail at [Alexandria.Carroll@alexandriava.gov](mailto:Alexandria.Carroll@alexandriava.gov).





### **Class 2: Protected or Covered Bicycle Parking (Long or Short Term)**

Bicycles parked in a Class 2 facility are protected from the elements, whether in a garage or under a covered shelter but are not in a fully enclosed locked room or cage. If parking areas are located in a garage, they should be visible by a parking attendant booth or a visitor/customer entrance.



**Class 2 bicycle parking at City Hall in Alexandria**

### **Class 3: Light Security for Visitor Parking (Short Term)**

The standard bicycle rack for short term or visitor parking is the “Inverted U” style rack. These racks are designed to accommodate two bicycles and should be installed exterior to the building. The specifications for the Inverted U racks are described below, and the rack installation guidelines can be found on [The Local Motion Website](http://www.localmotion.com).



**Class 3 bicycle parking at the King Street Metro Station  
(Photo courtesy of live-in-washingtondc.com)**

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## **V. Description - "Inverted U" Bicycle Rack**

The Inverted U's shall be fabricated from 1.5" inner diameter (I.D.) (1.9" outer diameter (O.D.)) to - 2.0" I.D. (2.375" O.D.) Schedule 40 Steel Pipe. The inverted U's shall measure approximately 36" high x 18-24" wide once installed. The bicycle racks shall not be welded in sections. Only the baseplate shall be welded to the steel pipe with two (2) 1/8" vent holes - one on the inside of each upright where the pipe is welded to the baseplate. After fabrication, the rack shall be coated with a Thermoplastic (polyethylene copolymer based) powder coating (polyarmor) to a thickness 200-250 micrometers (8 - 12 mils).



**Example of baseplate - note the vandal resistant fasteners used to anchor the rack.**  
(photo courtesy James Mackay, City of Denver)



**Detail of the vandal resistant fastener – Rawlplug #5550**  
(photo courtesy James Mackay, City of Denver)

Racks shall be flange mounted on concrete or set in concrete, depending on conditions. Where mounted on concrete, a minimum of 6" diameter baseplates with 3/8" thick steel in accordance with ASTM A36 will be used, with at least three 7/16" diameter mounting holes on each base plate.

The expansion anchor is to be a carbon steel mushroom head, 3/8" x 3" "spike" #5550 as manufactured by Rawl or an approved equal, manufactured from grade 8.2 materials exhibiting equivalent theft-proof performance. Racks shall be set firm and aligned with a tolerance of plus or minus 1/4" from plumb. Where required, steel tapered shims shall be installed prior to anchoring in place. Any departure of baseplate from grade by more than 3/8" shall require the separation to be filled with high-strength epoxy non-shrinking grout and made level.

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## **VI. Description - “Inverted U” Baserail Array Alternate**

Inverted U baserail arrays can be used instead of individual inverted U’s in some cases. The inverted U’s should be mounted 36" on-center via baseplate rails. Racks shall be mounted to concrete via baseplate rails ½" x 3" steel in accordance with ASTM A36 to create a free-standing array.

Only the baserails shall be welded to the steel pipe. The baserails shall have 7/16" diameter mounting holes located on the bicycle rack details (mounted via the same expansion anchors as described above).

## **VII. Location of Bicycle Parking Racks**

Racks should either be installed in the public right-of-way, or on private sites in conformance with front setback requirements. Racks should be placed within 50' of building entrances where bicyclists would naturally transition to pedestrian mode.

The rack placement would ideally allow for visual monitoring by people within the building and/or people entering the building. The placement of the racks should minimize conflicts with both pedestrians and motorized traffic. All bicycle parking provided should be on concrete, and located a minimum of 36" from a parallel wall, and 36" from a perpendicular wall (as measured to the closest inverted U). An inverted U rack with two parked bicycles will require roughly 7' in length and 3' in width.





### **VIII. Use of Alternative (Non-Inverted U) Bicycle Parking Racks**

As stated above, the inverted U is the required rack for all applications, however other bicycle parking devices may be approved for use as long as they provide for:

1. Supporting the bicycle frame at two locations (not just the wheel);
2. Allowing both the frame and at least one wheel to be locked to the rack (without requiring that the lock be placed near the bicycle chain);
3. Allowing the use of either a cable or "U-type" lock;
4. Bicycles which are equipped with water bottle cages;
5. Bicycles which are not equipped with kickstands; and
6. All types and sizes of bicycles, including various types and sizes of frames, wheel sizes, and tire widths.

Wave-type racks, pictured below, may not be installed as they are commonly used "broadside" (as shown below), which decreases the availability of bicycle parking spaces.



**Wave-type racks are not permitted**



**Bike Circle Type Rack  
(City of Alexandria)**

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### **IX. Availability of Bicycle Parking Racks**

Vendors of inverted U racks can be found in the yellow pages under “Bicycle Racks and Security Systems” and through an Internet search. The City does not recommend any particular vendor, however, vendors that sell this type of bicycle rack include Creative Pipe ([www.CreativePipe.com](http://www.CreativePipe.com)), Dero ([www.Dero.com](http://www.Dero.com)) and Graber ([www.GraberProducts.com](http://www.GraberProducts.com)).

### **X. Office Bicycle Parking Lockers and Shower Facilities**

The City of Alexandria requires that for every 50,000 square feet or fraction thereof of office gross floor area, one (1) shower per gender shall be installed, up to a maximum of three (3) showers per gender. Also, a minimum of one (1) clothes storage locker per gender shall be installed for every required employee bicycle parking space. The lockers shall be installed adjacent to the showers in a safe and secured area and both showers and lockers shall be accessible to all tenants of the building. The location, layout and security of the showers and lockers shall be reviewed by T&ES before issuance of the Construction Permit. The showers and lockers shall be open during normal working hours. There are no locker or shower facility requirements for retail or residential developments.

### **XI. Additional Bicycle Parking Information**

For additional information on any bicycle parking topics, visit <http://alexandriava.gov/localmotion/> or contact Hillary Poole, Complete Streets Coordinator at 703-746-4017 183 or via e-mail at [Hillary.Poole@alexandriava.gov](mailto:Hillary.Poole@alexandriava.gov).